

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1 – 72 (Cancelled)

73. (Currently Amended) A structure formed on a substrate comprising:

~~a material~~ an insulating layer formed on an existing atomic layer deposition layer ~~the substrate~~ in which the insulating material layer is pretreated by introducing a radical specie including any combination of O₂, H₂, H₂O, NH₃, NF₃, N₂, Cl and F to increase AH_x termination sites on the surface of the insulating material layer, where x is an integer and A is a non-metal capable of bonding with hydrogen H; and

a film layer formed above said insulating material layer by repeated introduction of a first precursor followed by a second precursor to deposit said film layer by atomic layer deposition, the first precursor to deposit a first reactive specie on the surface of the insulating material layer, the surface when pretreated being more receptive to have additional bonding with the first reactive specie, due to the increase of AH_x termination sites on the surface and the second precursor to deposit a second reactive specie to react with the deposited first reactive specie to form said film layer.

74. (Currently Amended) A method to perform atomic layer deposition comprising:

pretreating a surface of a substrate or a material layer formed on the substrate by introducing a radical specie including any combination of O₂, H₂, H₂O, NH₂, NF₃, N₂, Cl and F

to increase AHx termination sites on the surface, where x is an integer and A is a non-metal capable of bonding with hydrogen H, said pretreating further including introducing the radical specie by a plasma;

introducing a first precursor to deposit a first reactive specie on the surface, the surface when ~~preteated~~ pretreated being more receptive to have additional bonding with the first reactive specie, due to the increase of AHx termination sites on the surface; and

introducing a second precursor, after the bonding of the first reactive specie, to deposit a second reactive specie to react with the deposit first reactive specie to form a film layer,

wherein Al₂O₃ is deposited on TiXN, wherein X may be Al, Si or W by atomic layer deposition in which said pretreating includes introducing NH₃/H₂/ N₂ plasma to form NHx as the termination sites on Al₂O₃.

75. (Currently Amended) A method to perform atomic layer deposition comprising:

pretreating a surface of a substrate or a material layer formed on the substrate by introducing a radical specie including any combination of O₂, H₂, H₂O, NH₂, NF₃, N₂, C₁ and F to increase AHx termination sites on the surface, where x is an integer and A is a non-metal capable of bonding with hydrogen H, said pretreating further including introducing the radical specie by a plasma;

introducing a first precursor to deposit a first reactive specie on the surface, the surface when ~~preteated~~ pretreated being more receptive to have additional bonding with the first reactive specie, due to the increase of AHx termination sites on the surface; and

introducing a second precursor, after the bonding of the first reactive specie, to deposit a second reactive specie to react with the deposit first reactive specie to form a film layer,

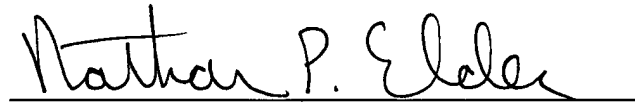
wherein HfO₂, ZrO₂ or La₂O₃ is deposited on Al₂O₃ by atomic layer deposition in which said pretreating includes introducing O₂/H₂/H₂O plasma to form NHx as the termination sites on TiN.

If there are any additional fees due in connection with this communication, please charge our deposit account no. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 11-30, 2004

A handwritten signature in black ink, reading "Nathan P. Elder", written over a horizontal line.

Nathan P. Elder

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